	Application No.	Applicant(s)
Notice of Allowability	10/619,774	HALE, IRA DAVID
	Examiner	Art Unit
	Vikkram Bali	2623

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address--*

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.

2. ☒ The allowed claim(s) is/are *1-78*.

3. ☒ The drawings filed on *15 July 2003* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some*   c)☐ None of the:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a)☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1)☐ hereto or 2)☐ to Paper No./Mail Date _____ .

    (b)☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

    Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date *7/15/2003*

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with Jefrey Hood, #35,198 on 3/23/2005.

The application has been amended as follows:

In claims:

Please amend the following claims:

36.   A [[computer-implemented method]] computer-readable memory medium
comprising program instructions for characterizing an image, [[the method comprising]] wherein
the program instructions are executable by a processor to implement:

adjusting locations of points in a set of points in a space sampled by the image one or
more times to converge towards an extremum of a total potential energy, wherein said total
potential energy comprises a combination of an atomic potential energy of the set and an image
potential energy of the set;

wherein the image potential energy is computed from the image and the locations of the
set points; and

wherein said adjusting locations one or more times produces a final set of points that is
usable to encode information associated with the image.

37.   The [[method]] computer-readable memory medium of claim [[17]] 36, wherein the image potential energy comprises a sum of image potential field values, and wherein each of said image potential field values corresponds to an evaluation of an image potential field at one of the set points.

38.   The [[method]] computer-readable memory medium of claim 37, wherein the image includes features of interest, the method further comprising generating the image potential field by processing the image so that the image potential field attains a first potential value along one or more of said features of interest and a second potential value away from said features of interest.

39.   The [[method]] computer-readable memory medium of claim 38, wherein the first potential value is a maximum potential value.

40.   The [[method]] computer-readable memory medium of claim 38, wherein the first potential value is a minimum potential value.

41.   The [[method]] computer-readable memory medium of claim 36, wherein the atomic potential energy comprises a sum of atomic potentials for pairs of said set points.

42.   The [[method]] computer-readable memory medium of claim 41, wherein the atomic potential for one of said pairs of said set points is a function of normalized distance between the points in the pair, and wherein the normalized distance equals the ratio of an unnormalized distance between the points in the pair and a local value of a nominal distance function.

43.   The [[method]] computer-readable memory medium of claim 42 further comprising:
        smoothing the image to generate a smoothed image; and
        assigning values to the nominal distance function based on values of the smoothed image.

44.   The [[method]] computer-readable memory medium of claim 36, further comprising generating a mesh from the final set of points, wherein the mesh is usable to encode information associated with the image.

45.   The [[method]] computer-readable memory medium of claim 44, further comprising performing a simulation of a physical process using the mesh.

46.   The [[method]] computer-readable memory medium of claim 36, wherein said combination comprises a linear combination $\alpha A + \beta B$, where A is the atomic potential energy, wherein B is the image potential energy, and wherein coefficients α and β control an extent of positional sensitivity of said set of points with respect to features in the image and an extent of regularity of said set of points.

47.   The [[method]] computer-readable memory medium of claim 36 further comprising:

acquiring a series of images; and

performing said initializing and adjusting on each of said images in said series to generate a corresponding series of final sets.

48.   The [[method]] computer-readable memory medium of claim 36 further comprising:

acquiring subsequent images;

encoding differences in the subsequent images using the final set of points to generate image codes; and

transmitting the image codes onto a transmission medium.

Allowable Subject Matter

2.   Claims 1-78 are allowed.

3.   The following is an examiner's statement of reasons for allowance:

Claims 1, 16, 31, 32, 33, 70 and their corresponding dependent claims are

allowed, because prior art alone or in combination with fails to disclose or teach a

method and system that generates a mesh characterizing an image that includes a

composite function that is a weighted combination of a first function of pair wise

distances between points and a second function of sampled values of image near points

and the first function is a summation of terms wherein each of the terms corresponds to

one of the pair wise distance between the points in combination to the other limitation of

the claim.

Claims 36, 49, 69, 78 and their corresponding dependent claims are allowed,

because prior art alone or in combination with fails to disclose or teach a method and

system that generates a mesh characterizing an image that includes adjusting locations

of points in a set of points in a space sampled by the image one or more times to

converge towards an extremum of a total potential energy wherein total potential energy

comprises a combination of an atomic potential energy of the set and the an image

potential energy of the set, wherein the image potential energy is computer from the

image and the locations of the set points in combination to the other limitation of the
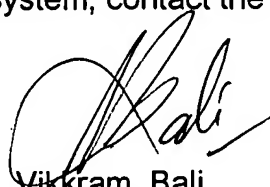
claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 703.305.4510. The examiner can normally be reached on 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703.308.6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vikkram Bali
Primary Examiner
Art Unit 2623

vb
March 29, 2005